Serial Numb r: 10 045,624B

CRF Processing Date: 8/28/02
Edited by: _____
Verified by: _____ (STIC staff)

ENTERED

☐ Changed a file from non-ASCII to ASCII

☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.

☐ Edited a format error in the Current Application Data section, specifically:
_____

☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____.

☐ Added the mandatory heading and subheadings for "Current Application Data".

☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.

☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically:
_____

☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:
_____

☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:
_____

☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.

☐ Inserted colons after headings/subheadings. Headings edited included:
_____

☐ Deleted extra, invalid, headings used by an applicant, specifically:
_____

☑ Deleted: ☑ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as_____.

☐ Inserted mandatory headings, specifically: _____

☐ Corrected an obvious error in the response, specifically: _____
_____

☐ Edited identifiers where upper case is used but lower case is required, or vice versa.

☐ Corrected an error in the Number of Sequences field, specifically:
_____

☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.

☐ Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____

☐ Other:
_____
_____
_____

*Examiner: Th above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/045,624B

DATE: 08/28/2002
TIME: 11:55:53

Input Set : A:\PTO.DC.txt
Output Set: N:\CRF4\08282002\J045624B.raw

```
    4 <110> APPLICANT: Allen, Keith D.
    6 <120> TITLE OF INVENTION: TRANSGENIC MICE CONTAINING THYROID
    7       STIMULATING HORMONE RECEPTOR (TSH-R) GENE DISRUPTIONS
   10 <130> FILE REFERENCE: R-666
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/045,624B
C--> 12 <141> CURRENT FILING DATE: 2002-08-19
   12 <150> PRIOR APPLICATION NUMBER: US 10/045,624
   13 <151> PRIOR FILING DATE: 2001-10-26
   15 <160> NUMBER OF SEQ ID NOS: 4
   17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
   19 <210> SEQ ID NO: 1
   20 <211> LENGTH: 2512
   21 <212> TYPE: DNA
   22 <213> ORGANISM: Mus musculus
   24 <400> SEQUENCE: 1
   25 cagcgtcaga cgcagggcac tgagaatgtg cgacagcgcg caacgatgaa gtagcccaga 60
   26 gggtcccttg gaaaatgagg ccagggtccc tgctgctgct tgttctgctg ctcgccctgt 120
   27 ccaggagcct gcggggcaaa gagtgtgcgt ctccaccctg tgagtgtcac caggaggacg 180
   28 acttcagagt cacctgcaag gagctccacc gaatcccag cctgccgccc agcacccaga 240
   29 ctctgaagct catcgagact catctgaaga ccatacccag tcttgcattt tcgagtctgc 300
   30 ccaatatttc caggatctat ttatctatag atgcaactct gcagcggctg gaaccacatt 360
   31 ctttctacaa tttgagtaaa atgactcaca tagaaatccg gaacaccaga agcttaacct 420
   32 atatagaccc tgatgccttg acagagctcc ccttgctcaa gtttcttggc attttcaata 480
   33 ctggacttag aatattccct gacttgacca aaatttattc cacggacata ttctttatac 540
   34 ttgaaatcac agacaaccct tacatgactt cggtccctga aaacgcattc cagggcctat 600
   35 gcaatgaaac cttgaccctg aaactgtaca acaatggatt tacttcagtc caaggacatg 660
   36 ctttcaatgg aacaaagctg gatgctgttt acctaaacaa gaataaatac ctgacagcta 720
   37 tagacaacga tgcctttgga ggagtataca gtggaccaac tttgctagat gtgtcttcca 780
   38 ccagcgtcac tgcccttcct tccaaaggcc tggagcacct caaagaactg atcgcaaaag 840
   39 acacctggac tctcaaaaag ctcccgctgt cgttgagttt cctccacctc actcgggctg 900
   40 acctctctta cccgagccac tgctgcgctt ttaagaacca gaagaaatc aggggaatcc 960
   41 tggagtcttt gatgtgtaat gagagcagta tccggaacct tcgtcaaagg aaatcagtga 1020
   42 acatcttgag gggtcccatc taccaggaat atgaagaaga tccgggtgac aacagtgttg 1080
   43 ggtacaaaca aaactccaag ttccaggaga gcccaagcaa ctctcactat tacgtcttct 1140
   44 ttgaagaaca agaggatgag gtcgttggtt tcggccaaga gctcaaaaat cctcaggaag 1200
   45 agactctcca agccttcgag agccactatg actacacggt gtgtgggggac aacgaggaca 1260
   46 tggtgtgtac ccccaagtcg gacgagttta accctgtga agatatcatg ggctacaggt 1320
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   48 tgctcattct gctaaccagc cactacaaat gaccgtgcc gcggttcctc atgtgcaact 1440
   49 tggcctttgc agatttctgc atgggggtat acctgcttct cattgcctct gtagacctgt 1500
   50 acacacactc tgagtactac aaccacgcca tcgactggca gacgggccct gggtgcaaca 1560
   51 cggctggctt cttcactgtt ttcgccagtg agttatcagt gtacacactg acggtcatca 1620
   52 ccctggagcg atggtacgcc atcaccttcg ccatgcgcct ggataggaag atccgcctca 1680
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PATENT APPLICATION: US/10/045,624B   TIME: 11:55:53

Input Set : A:\PTO.DC.txt
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53 ggcacgcgta caccatcatg gctggggggct gggtttcctg cttccttctc gccctgctcc 1740
54 cgatggtggg aatcagcagc tatgccaagg tcagcatctg cctgccaatg acaccgaca 1800
55 cccctcttgc actcgcatac attgtcctcg ttctgctgct caatgttgtt gcctttgttg 1860
56 tcgtctgttc ctgctatgtg aagatctaca tcacggtccg aaatccccag tacaaccctc 1920
57 gagataaaga caccaagatt gccaagagga tggctgtgtt gatcttcact gacttcatgt 1980
58 gcatggcgcc catctccttc tatgcgctgt cggcacttat gaacaagcct ctaatcactg 2040
59 ttactaactc caaaatcttg ttggttctct tctacccct caactcctgt gccaatccgt 2100
60 ttctctatgc tattttcacc aaggccttcc agagggacgt gttcatcctg ctcagcaagt 2160
61 ttggcatctg caaacgccag gcccaggcct atcagggtca gagagtctgt cccaacaata 2220
62 gcactggtat tcagatccaa aagattcccc aggacacgag gcagagtctc cccaacatgc 2280
63 aagataccta tgaactgctt ggaaactccc agctagctcc aaaactgcag ggacaaatct 2340
64 cagaagagta taagcaaaca gccttgtaaa ggaaaggcta cgctagtcac agtgagactt 2400
65 acaaaaggct ggtttcttga acatgcgttc cagtcccgtg acatgtgaac acataggttc 2460
66 atgcaggtga tgattcatag ggtcagagtt catctctaga aagtattgcc tc         2512
68 <210> SEQ ID NO: 2
69 <211> LENGTH: 764
70 <212> TYPE: PRT
71 <213> ORGANISM: Mus musculus
73 <400> SEQUENCE: 2
74 Met Arg Pro Gly Ser Leu Leu Leu Leu Val Leu Leu Leu Ala Leu Ser
75  1               5                   10                  15
76 Arg Ser Leu Arg Gly Lys Glu Cys Ala Ser Pro Pro Cys Glu Cys His
77              20                  25                  30
78 Gln Glu Asp Asp Phe Arg Val Thr Cys Lys Glu Leu His Arg Ile Pro
79          35                  40                  45
80 Ser Leu Pro Pro Ser Thr Gln Thr Leu Lys Leu Ile Glu Thr His Leu
81      50                  55                  60
82 Lys Thr Ile Pro Ser Leu Ala Phe Ser Ser Leu Pro Asn Ile Ser Arg
83 65                  70                  75                  80
84 Ile Tyr Leu Ser Ile Asp Ala Thr Leu Gln Arg Leu Glu Pro His Ser
85                  85                  90                  95
86 Phe Tyr Asn Leu Ser Lys Met Thr His Ile Glu Ile Arg Asn Thr Arg
87              100                 105                 110
88 Ser Leu Thr Tyr Ile Asp Pro Asp Ala Leu Thr Glu Leu Pro Leu Leu
89          115                 120                 125
90 Lys Phe Leu Gly Ile Phe Asn Thr Gly Leu Arg Ile Phe Pro Asp Leu
91      130                 135                 140
92 Thr Lys Ile Tyr Ser Thr Asp Ile Phe Phe Ile Leu Glu Ile Thr Asp
93 145                 150                 155                 160
94 Asn Pro Tyr Met Thr Ser Val Pro Glu Asn Ala Phe Gln Gly Leu Cys
95                  165                 170                 175
96 Asn Glu Thr Leu Thr Leu Lys Leu Tyr Asn Asn Gly Phe Thr Ser Val
97              180                 185                 190
98 Gln Gly His Ala Phe Asn Gly Thr Lys Leu Asp Ala Val Tyr Leu Asn
99          195                 200                 205
100 Lys Asn Lys Tyr Leu Thr Ala Ile Asp Asn Asp Ala Phe Gly Gly Val
101      210                 215                 220
102 Tyr Ser Gly Pro Thr Leu Leu Asp Val Ser Ser Thr Ser Val Thr Ala
103 225                 230                 235                 240
```

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Output Set: N:\CRF4\08282002\J045624B.raw

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104 Leu Pro Ser Lys Gly Leu Glu His Leu Lys Glu Leu Ile Ala Lys Asp
105              245            250            255
106 Thr Trp Thr Leu Lys Lys Leu Pro Leu Ser Leu Ser Phe Leu His Leu
107          260            265            270
108 Thr Arg Ala Asp Leu Ser Tyr Pro Ser His Cys Cys Ala Phe Lys Asn
109      275            280            285
110 Gln Lys Lys Ile Arg Gly Ile Leu Glu Ser Leu Met Cys Asn Glu Ser
111      290            295            300
112 Ser Ile Arg Asn Leu Arg Gln Arg Lys Ser Val Asn Ile Leu Arg Gly
113 305            310            315            320
114 Pro Ile Tyr Gln Glu Tyr Glu Glu Asp Pro Gly Asp Asn Ser Val Gly
115          325            330            335
116 Tyr Lys Gln Asn Ser Lys Phe Gln Glu Ser Pro Ser Asn Ser His Tyr
117          340            345            350
118 Tyr Val Phe Phe Glu Glu Gln Glu Asp Glu Val Val Gly Phe Gly Gln
119          355            360            365
120 Glu Leu Lys Asn Pro Gln Glu Glu Thr Leu Gln Ala Phe Glu Ser His
121      370            375            380
122 Tyr Asp Tyr Thr Val Cys Gly Asp Asn Glu Asp Met Val Cys Thr Pro
123 385            390            395            400
124 Lys Ser Asp Glu Phe Asn Pro Cys Glu Asp Ile Met Gly Tyr Arg Phe
125          405            410            415
126 Leu Arg Ile Val Val Trp Phe Val Ser Leu Leu Ala Leu Leu Gly Asn
127          420            425            430
128 Ile Phe Val Leu Leu Ile Leu Leu Thr Ser His Tyr Lys Leu Thr Val
129          435            440            445
130 Pro Arg Phe Leu Met Cys Asn Leu Ala Phe Ala Asp Phe Cys Met Gly
131      450            455            460
132 Val Tyr Leu Leu Leu Ile Ala Ser Val Asp Leu Tyr Thr His Ser Glu
133 465            470            475            480
134 Tyr Tyr Asn His Ala Ile Asp Trp Gln Thr Gly Pro Gly Cys Asn Thr
135          485            490            495
136 Ala Gly Phe Phe Thr Val Phe Ala Ser Glu Leu Ser Val Tyr Thr Leu
137          500            505            510
138 Thr Val Ile Thr Leu Glu Arg Trp Tyr Ala Ile Thr Phe Ala Met Arg
139          515            520            525
140 Leu Asp Arg Lys Ile Arg Leu Arg His Ala Tyr Thr Ile Met Ala Gly
141      530            535            540
142 Gly Trp Val Ser Cys Phe Leu Leu Ala Leu Leu Pro Met Val Gly Ile
143 545            550            555            560
144 Ser Ser Tyr Ala Lys Val Ser Ile Cys Leu Pro Met Asp Thr Asp Thr
145          565            570            575
146 Pro Leu Ala Leu Ala Tyr Ile Val Leu Val Leu Leu Leu Asn Val Val
147          580            585            590
148 Ala Phe Val Val Val Cys Ser Cys Tyr Val Lys Ile Tyr Ile Thr Val
149          595            600            605
150 Arg Asn Pro Gln Tyr Asn Pro Arg Asp Lys Asp Thr Lys Ile Ala Lys
151      610            615            620
152 Arg Met Ala Val Leu Ile Phe Thr Asp Phe Met Cys Met Ala Pro Ile
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153 625                    630                    635                    640
154 Ser Phe Tyr Ala Leu Ser Ala Leu Met Asn Lys Pro Leu Ile Thr Val
155                    645                    650                    655
156 Thr Asn Ser Lys Ile Leu Leu Val Leu Phe Tyr Pro Leu Asn Ser Cys
157                    660                    665                    670
158 Ala Asn Pro Phe Leu Tyr Ala Ile Phe Thr Lys Ala Phe Gln Arg Asp
159                    675                    680                    685
160 Val Phe Ile Leu Leu Ser Lys Phe Gly Ile Cys Lys Arg Gln Ala Gln
161        690                    695                    700
162 Ala Tyr Gln Gly Gln Arg Val Cys Pro Asn Asn Ser Thr Gly Ile Gln
163 705                    710                    715                    720
164 Ile Gln Lys Ile Pro Gln Asp Thr Arg Gln Ser Leu Pro Asn Met Gln
165                    725                    730                    735
166 Asp Thr Tyr Glu Leu Leu Gly Asn Ser Gln Leu Ala Pro Lys Leu Gln
167                    740                    745                    750
168 Gly Gln Ile Ser Glu Glu Tyr Lys Gln Thr Ala Leu
169           755                    760
172 <210> SEQ ID NO: 3
173 <211> LENGTH: 200
174 <212> TYPE: DNA
175 <213> ORGANISM: Artificial Sequence
177 <220> FEATURE:
178 <223> OTHER INFORMATION: Targeting vector
180 <400> SEQUENCE: 3
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182 tcggagccct cctcctccct cccttcccct cctgcacccg ggtctcttcc agcgtcagac 120
183 gcagggcact gagaatgtgg cgacagcgcg caacgatgaa gtagcccaga gggtcccttg 180
184 gaaaatgagg ccagggtccc                                          200
186 <210> SEQ ID NO: 4
187 <211> LENGTH: 200
188 <212> TYPE: DNA
189 <213> ORGANISM: Artificial Sequence
191 <220> FEATURE:
192 <223> OTHER INFORMATION: Targeting vector
194 <400> SEQUENCE: 4
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196 gccgcccagc acccagactc tgtgagtagc caaggccaag accccccccc cccgagaaat 120
197 tcgtggtgtg tgttggggtg tgcgcggata tctggtcagt ccctgtacaa attcaatccc 180
198 ccatgctcgg gaaggtcagc                                          200
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VERIFICATION SUMMARY
PATENT APPLICATION: US/10/045,624B

DATE: 08/28/2002
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Input Set : A:\PTO.DC.txt
Output Set: N:\CRF4\08282002\J045624B.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date